

Five new species of the genus *Schreiteriana* Fletcher et Nye, 1982 (Lepidoptera: Cossidae) from Peru and Columbia (South America)

Пять новых видов рода *Schreiteriana* Fletcher et Nye, 1982 (Lepidoptera: Cossidae) из Перу и Колумбии (Южная Америка)

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КЛЮЧЕВЫЕ СЛОВА: энтомология, Lepidoptera, древоточцы, Zeuzerinae, фауна, Неотропический регион.

ABSTRACT. Five new species of the genus *Schreiteriana* Fletcher et Nye, 1982 (Lepidoptera: Cossidae) are described from Peru and Columbia (South America): *Schreiteriana rudloffii* Yakovlev, Penco et Witt, sp.n.; *Schreiteriana thonyi* Yakovlev, Penco et Witt, sp.n.; *Schreiteriana chaska* Yakovlev, Penco et Witt, sp.n.; *Schreiteriana kon* Yakovlev, Penco et Witt, sp.n.; *Schreiteriana urcuchillay* Yakovlev, Penco et Witt, sp.n. Descriptions of external characters and the male genitalia is given. Color images of all the species of the genus and their morphological structures are provided and a distribution map of *Schreiteriana* is presented.

РЕЗЮМЕ. В статье описаны 5 новых видов рода *Schreiteriana* Fletcher et Nye, 1982 (Lepidoptera: Cossidae) из Перу и Колумбии (Южная Америка): *Schreiteriana rudloffii* Yakovlev, Penco et Witt, sp.n.; *Schreiteriana thonyi* Yakovlev, Penco et Witt, sp.n.; *Schreiteriana chaska* Yakovlev, Penco et Witt, sp.n.; *Schreiteriana kon* Yakovlev, Penco et Witt, sp.n.; *Schreiteriana urcuchillay* Yakovlev, Penco et Witt, sp.n. Даны описания внешнего вида и гениталий самцов, изображения и карта распространения всех видов рода *Schreiteriana*.

Introduction

The study of Lepidopteran fauna of South America is still at the initial stage, including the Cossidae. In the last decade, several redescriptions have been published on previously known genera and species of the Argentine fauna [Davis et al., 2008; Yakovlev, 2014; Penco, Yakovlev, 2015; Penco et al., 2016; Yakovlev et al., 2016].

The genus *Schreiteriana* Fletcher et Nye, 1982 (Type species (by monotypy) *Schreiteria pectinicornis* Dyar, 1937) (Fig. 1) was redescribed by Penco et al. [2016]. Based on the examination of the male genitalia (Fig. 7), it is determined that the genus belongs to the subfamily Zeuzerinae Boisduval, 1829 (type genus *Zeuzera* Latreille, 1804). Examining the material deposited in the collection of Thomas Witt (Museum Witt, Munich, Germany), five new species were discovered and are described below.

Material and methods

Male genitalia were mounted in euparal on slides following Lafontaine [2004] and examined with a Zeiss Stemi 2000 C microscope. Images were taken with the Olympus XC 50 camera.

Results

Schreiteriana rudloffii Yakovlev, Penco et Witt, sp.n.
Figs 2, 8.

MATERIAL. Holotype, ♂, “Kolumbien, Prov. Cundinamarca-Municipio, El Oasis, 2150 m, Bergwald oberth. Flusstal, 5°N/74°32'W, 15.08.1998, leg. Rudloff” (GenPr-Heterocera 28.480) (MWM).

DESCRIPTION. Length of forewing 17 mm. Antenna goblet-like (bipectinate basally, filiform distally). Fore wing pale grey, relatively narrow, elongated, torn brown field at base, relatively rare blurred grey streaks throughout the whole wing forming reticulated pattern, small round spots along costal edge. Hind wing white with very poor spraying of gray scales.

Male genitalia structure typical for the genus. Uncus long, sharply narrowing in middle third, apex clavately extended; tegumen robust, trapezoidal, gnathos arms thin, apically narrowing, not fused; valva narrow, relatively long,

costal edge even, small notch in middle third of abdominal edge; juxta robust with wide dorsally directed lateral processes, saccus poorly expressed, flat; phallus thick, length equal to valva, in lateral surface of vesica a robust finger-like cornutus equal in length to 1/2 of phallus.

Female unknown.

DIAGNOSIS. Externally and in the male genital structure, the new species is most similar to *S. kon* sp.n. described below, but differs in the following features:

- poorly expressed reticulated pattern on the fore wing (in *S. kon* sp.n., the reticulated pattern on the fore wing is well developed);
- absence of the discal spot (in *S. kon* sp.n., the discal spot is expressed on the fore wing);
- the uncus sharply narrowing in the middle third (in *S. kon* sp.n., the narrowing of the uncus in the middle third is less expressed);
- poorly developed notch on the abdominal edge of the valva (in *S. kon* sp.n., the same notch is more developed).

ETYMOLOGY. The new species is named after its collector, Jean-Paul Rudloff.

Schreiteriana thonyi Yakovlev, Penco et Witt, sp.n.
Figs. 3, 9.

MATERIAL. Holotype, ♂, Peru, Prov. Huanuco, Yuyapichis, ACP Panguana, 9°36'2S/ 74°56'2W, July 2013, 220 m, leg. Hubert Thony (GenPr-Heterocera MWM 28.649). Paratype, ♂, Peru, Prov. Huanuco, Yuyapichis, Faz Tropical, 9°37'2S/ 74°56'2W, July 2013, 210 m, leg. Hubert Thony (MWM).

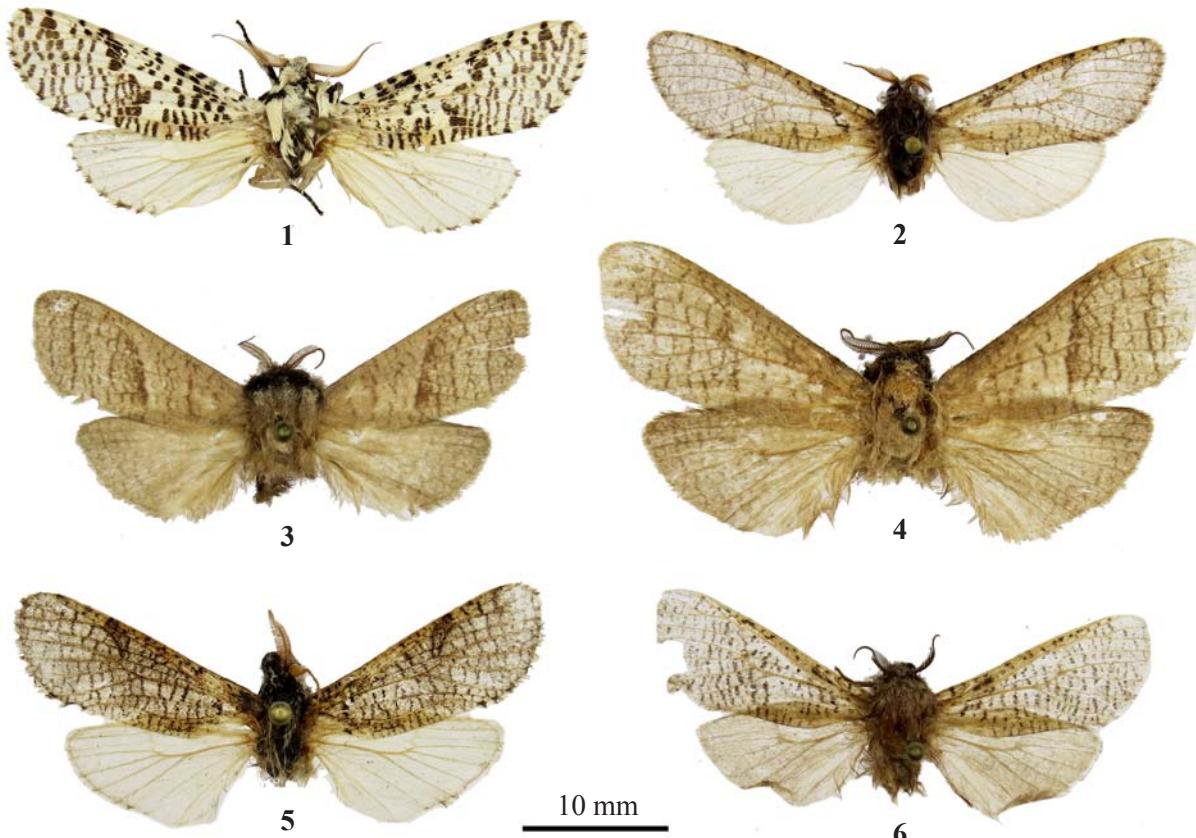
DESCRIPTION. Length of fore wing 14 mm. Antenna goblet-like (basally bipectinate, distally filiform). Fore wing pale brown (coffee), relatively wide, short, with fine brown transverse undulated bands, the transverse band wide in discal area. Hind wing pale brown with very poorly expressed reticulated pattern.

Male genitalia structure typical for the genus. Uncus long, basally wide, two distal thirds narrow, with parallel edges, apex spear-pointed; tegumen robust, trapezoidal; gnathos arms thin, apically narrowing, not fused; valva narrow, lanceolate, relatively long, costal edge even, small notch in middle third of abdominal edge; juxta robust, with narrow, dorsally directed lateral processes; saccus poorly expressed, semicircular; phallus thick, length equal to valva, in lateral surface of vesica a robust finger-like cornutus equal in length to 2/3 of phallus.

Female unknown.

DIAGNOSIS. Externally and in the male genital structure, the new species is most similar to *E. chaska* sp.n. described below, but differs in the following features:

- the pale brown hind wing with the poorly expressed reticulated pattern (in *E. chaska* sp.n., the reticulated pattern is expressed significantly more);
- the long, basally wide uncus with narrow two thirds, parallel edges and the spear-pointed apex (in *E. chaska* sp.n., the uncus is relatively short, thick, with obtuse apex);
- the narrow, lanceolate, relatively long valva (in *E. chaska* sp.n., the valva is significantly shorter, wider, with a semicircular apex).



Figs 1–6. Adult Cossidae specimens, males: 1 — *S. pectinicornis*; 2 — *S. rudloffii* sp.n.; 3 — *S. thonyi* sp.n.; 4 — *S. chaska* sp.n.; 5 — *S. kon* sp.n.; 6 — *S. urcuchillay* sp.n.; 1 — Argentina, Missiones, Iguazu, 2.X.1995 (Museum Witt, Munich); 2–6 — holotypes.

Figs 1–6. Внешний вид самцов Cossidae: 1 — *S. pectinicornis*; 2 — *S. rudloffii* sp.n.; 3 — *S. thonyi* sp.n.; 4 — *S. chaska* sp.n.; 5 — *S. kon* sp.n.; 6 — *S. urcuchillay* sp.n.; 1 — Аргентина, Мисьонес, Игуасу, 2.X.1995 (Музей Witt, Мюнхен); 2–6 — голотипы.

ETYMOLOGY. The new species is named after its collector, Hubert Thony.

Schreiteriana chaska Yakovlev, Penco et Witt, sp.n.
Figs 4, 10.

MATERIAL. Holotype, 1 ♂, Peru, Prov. Huanuco, Yuyapichis, ACP Panguana, 9°36'2S/ 74°56'2W, July 2013, 220 m, leg. Hubert Thony (GenPr-Heterocera MWM 28.607).

DESCRIPTION. Length of fore wing 16 mm. Antenna goblet-like (bipectinate basally, filiform distally). Fore wing pale brown relatively wide and short, with fine transverse brown undulated bands, the transverse band is wide in discal area. Hind wing pale brown with well-expressed reticulated pattern.

Male genitalia structure typical for the genus. Uncus relatively short, thick, apex obtuse; tegumen robust, trapezoidal; gnathos arms thin, apically narrowing, not fused; valva rather short, wide, apex rounded, costal edge even, small notch in middle third of abdominal edge; juxta robust with narrow, dorsally directed lateral processes; saccus poorly expressed, semicircular; phallus thick, length equal to valva, in lateral surface of vesica a robust finger-like cornutus equal in length to 2/3 of phallus.

DIAGNOSIS. Externally and in the male genital structure, the new species is most similar to *E. thonyi* sp.n., but differs in the following features:

— the pale brown hind wing with well-expressed reticulated

pattern (in *E. thonyi* sp.n. the reticulated pattern is significantly less expressed);

- the short thick uncus with the obtuse apex (in *E. thonyi* sp.n., the uncus is long, the apex is spear-pointed);
- the short wide valva with the rounded apex (in *E. thonyi* sp.n., the valva is narrow, lanceolate, relatively long).

Female unknown.

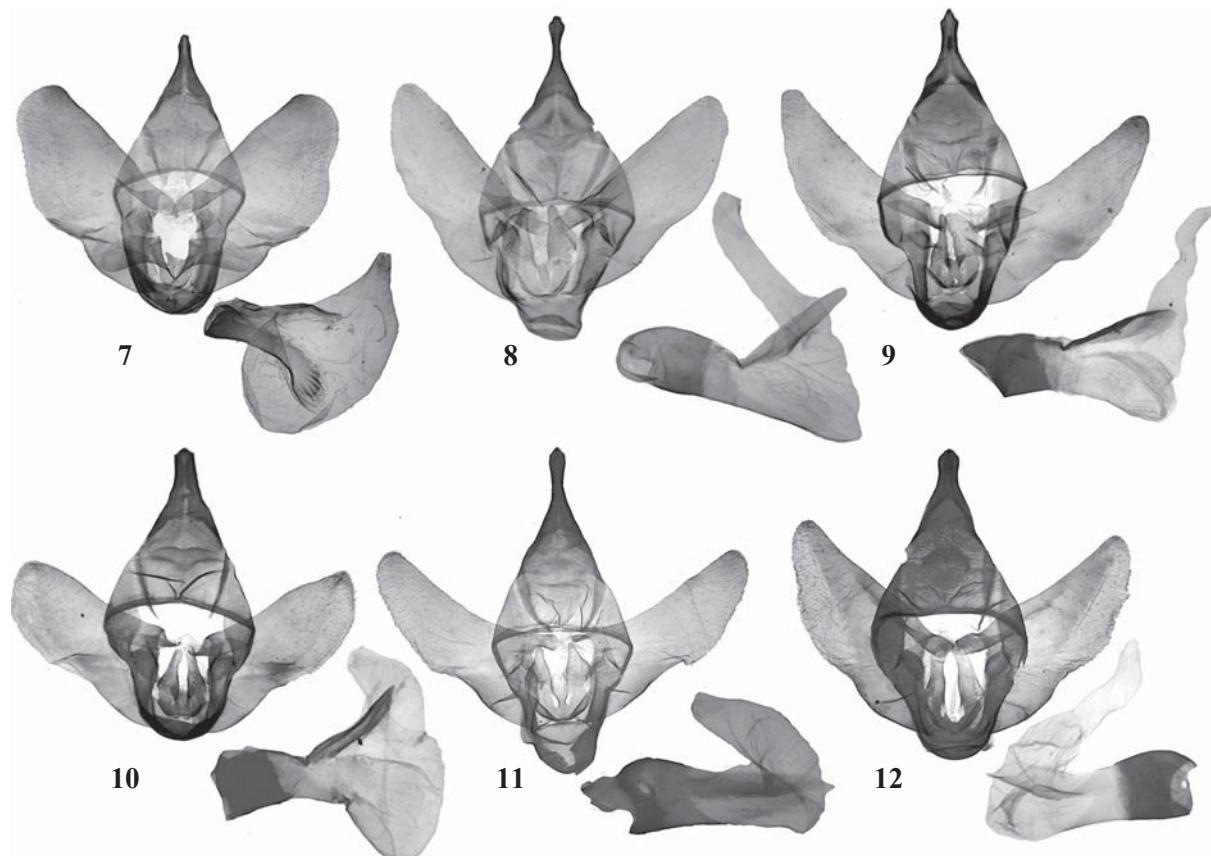
ETYMOLOGY. Ch'aska (in Quechua) is the goddess of dawn and sunset in the mythology of the Incas, the largest empire in preColumbian America.

Schreiteriana kon Yakovlev, Penco et Witt, sp.n.
Figs 5, 11.

MATERIAL. Holotype, 1 ♂, Peru (NW), Piura dept., Abra Porcuya (near Motupe), 05°50'2S/ 79°30'2W, February 2008, 1800 m, ex coll. Dr. Ronald Brechlin (GenPr-Heterocera MWM 28.642).

DESCRIPTION. Length of fore wing 16 mm. Antenna goblet-like (bipectinate basally, filiform distally). Fore wing grey, relatively narrow, elongated, well developed reticulated pattern throughout the whole wing, expressed big grey discal spot. Hind wing white without pattern.

Male genitalia structure typical for the genus. Uncus long, slightly narrower in middle third, with clavately extended apex; tegumen robust, trapezoidal; gnathos arms thin, apically narrowing, not fused; valva narrow, relatively long, costal edge even, well expressed notch in middle third of abdominal edge; juxta robust with wide dorsally directed



Figs 7–2. Male genitalia: 7 — *S. pectinicornis*; 8 — *S. rudloffi* sp.n.; 9 — *S. thonyi* sp.n.; 10 — *S. chaska* sp.n.; 11 — *S. kon*, sp.n.; 12 — *S. urcuchillay* sp.n.; 7 — Argentina, Missiones, Iguazu (GenPr-Heterocera MWM 28.544); 8–12 — holotype.

Рис. 7–2. Гениталии самцов: 7 — *S. pectinicornis*; 8 — *S. rudloffi*, sp.n.; 9 — *S. thonyi*, sp.n.; 10 — *S. chaska*, sp.n.; 11 — *S. kon*, sp.n.; 12 — *S. urcuchillay*, sp.n.; 7 — Аргентина, Мисьонес, Игуасу (GenPr-Heterocera MWM 28.544); 8–12 — голотипы.

lateral processes; saccus poorly expressed, flat; phallus thick, length equal to valva, in lateral surface of vesica a robust finger-like cornutus equal to 1/2 of phallus.

Female unknown.

DIAGNOSIS. Externally and in the male genital structure, the new species is most similar to *S. rudloffii* sp.n., but differs in the following features:

- the fore wing with expressed reticulated pattern (in *S. rudloffii* sp.n., the reticulated pattern on the fore wing is very poorly developed);
- the expressed discal spot (*S. rudloffii* sp.n. has no discal spot on the fore wing);
- the uncus slightly narrower in the middle third (in *S. rudloffii* sp.n., the uncus is sharply narrowing in the middle third);
- the well expressed notch on the abdominal edge of the valva (in *S. rudloffii* sp.n., the notch is poorly expressed).

ETYMOLOGY. Kon (in Quechua) is the god of rain and wind in the mythology of the Incas.

Schreiteriana urcuchillay Yakovlev, Penco et Witt,
sp.n.
Figs 6, 12.

MATERIAL. Holotype, 1 ♂, Peru, Prov. Huanuco, Yuyapichis, ACP Panguana, 9°36'2S/ 74°56'2W, August 2013, 220 m, leg. Hubert Thony (GenPr-Heterocera MWM 28.646).

DESCRIPTION. Length of fore wing 14 mm. Antenna goblet-like (bipectinate basally, filiform distally). Fore wing white, relatively narrow, elongated, throughout the whole wing expressed grey streaks forming sharp-cut reticulated pattern. Hind wing grey, without pattern.

Male genitalia structure typical for the genus. Uncus short with poorly expressed narrowing in middle third and clavately extended apex; tegumen robust, trapezoidal; gnathos arms very thin, apically narrowing, not fused; valva narrow, relatively long, costal edge even, lanceolate, abdominal edge uneven; juxta robust, with long, relatively narrow, dorsally directed lateral processes; saccus poorly expressed, flat; phallus robust, length equal to valve, in lateral surface of vesica a robust finger-like cornutus equal in length to 1/3 of phallus.

Female unknown.

DIAGNOSIS. Externally, the new species is most similar to *S. pectinicornis*, but differs from it by the following features:

- the well expressed reticulated pattern on the fore wing (*S. pectinicornis* has a spotted pattern on the fore wing);
- the short uncus, slightly narrower in the middle third, with the clavately extended apex (in *S. pectinicornis*, the uncus is triangle evenly narrowing to the apex);
- the narrow, relatively long lanceolate valva with an even edge (in *S. pectinicornis*, the valva is wide, semicircular);
- the narrow lateral dorsally directed processes of the juxta (in *S. pectinicornis*, the lateral processes of the juxta are wide, diluted to sides).

ETYMOLOGY. Urcuchillay (in Quechua) is the god protecting animals, in the mythology of the Incas.

With the newly described above species, *Schreiteriana* is represented by six species, relatively widespread in Argentine, Peru, and Columbia (Fig. 13). The differences in male genital



Fig. 13. Distribution map of *Schreiteriana* Fletcher et Nye, 1982.

Рис. 13. Карта распространения видов *Schreiteriana* Fletcher et Nye, 1982.

structures in the Zeuzerinae specimens appear more distinctive than in those in the taxa of the Old World, perhaps indicating more adaptive radiation of the group in the New World. Additional taxonomic studies of the Cossidae of South America will certainly yield interesting additional taxa.

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References

Davis S.R., Gentili-Poole P., Mitter C.H. 2008. A revision of the Cossulinae of Costa Rica and cladistic analysis of the world species (Lepidoptera: Cossidae) // Zoological Journal of the Linnean Society. Vol.154. P.222–277. <https://doi.org/10.1111/j.1096-3642.2008.00406.x>

Lafontaine J.D. 2004. Noctuoidea, Noctuidae (part), Noctuinae (part-Agrotini) // R.W. Hodges (ed.). The Moths of America North of Mexico. Fasc. 27.1. The Wedge Entomological Research Foundation, Washington. 385 pp.

Penco F.C., Yakovlev R. 2015. Lista comentada de los Cossidae (Lepidoptera) de Argentina // Historia Natural (Universidad Maimónides). Tercera Serie. Vol.5. No.2. P.79–94.

Penco F.P., Yakovlev R.V., Witt Th.J. 2016. Taxonomic notes on the genera *Brypoctia* Schoorl, 1990 and *Schreiteriana* Fletcher & Nye, 1982 (Lepidoptera, Cossidae) // Zootaxa. Vol.4205. No.3. P.297–300. DOI: 10.11646/zootaxa.4205.3.10.

Yakovlev R.V. 2014. Redescription of the genus *Miacora* Dyar, 1905 from South America (Lepidoptera, Cossidae) // SHILAP Revista de lepidopterología. Vol.42. No.165. P.57–60.

Yakovlev R.V., Penco F.C., Witt T.J. 2016. Redescription of genus *Psychonoctua* Grote, 1865 (Insecta: Lepidoptera, Cossidae, Zeuzerinae) // Biological Bulletin of Bogdan Chmelni茨кий Melitopol State Pedagogical University. Vol.6. No.3. P.46–50.